GLINIGAL STUDY OF THE LENS INDUGED GLAUGOMA AND ITS VISUAL PROGNOSIS

THESIS FOR MASTER OF SURGERY

(OPHTHALMOLOGY)





BUNDELKHAND UNIVERSITY JHANSI (U. P.)

CERTIFICATE

"Clinical study of lens induced glaucoma and its visual prognosis" which is being submitted as thesis for M.S. (Cphthalmology) examination of Bundelkhand University, 1990 by Dr. Remesh Chandra Agarwal has been carried out in the department of Cphthalmology, M.L.B. Redical College, Jhansi.

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Certified that the work entitled "Clinical study of less induced glaucoma and its visual prognosis" was conducted by Dr. Ramesh Chandra Agarwal under our direct guidance and supervision. The investigations, technique and statistics mentioned in the thesis were actually undertaken by candidate himself. His observations have been checked by us regularly.

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when it comes to express the heart felt gratitude towards those who were life and soul to this work, my situation is aptly summed up by the lines "when the heart is full, the tongue is silent; words - if they could be adequately used - would perhaps still not suffice in bringing forth the totality of my greatfulness for those concerned.

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(RAMESH CHANDRA AGARMAL)

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Lens induced glaucoma is a glaucome which developed secondary to the change in morphology or pathology of the lens.

It may be safely said that while everyone would develop a semile cataract, if he lived long enough: So also would everyone would obtain a spontaneous cure, if life was sufficiently prolonged.

In India each year about 12 million persons become temporarely blind due to the maturation of cataroct out of which several persons become permanent blind due to the unavailability of the treatment and hyper - maturation. Because 65% Indian population live in the villages are illiterate; poor and ignorant, does not know the consiquences of hypermaturation of cataroct and they may develop lens induced glaucoma as the curse for their illiteracy, poverty and ignorance. This condition was present since time imemorial but does not come into light due to lack of literature and diagnostic tools. In the last two decades of 19th century some scientist observed the frequent occurance of iritis and rise in the intraocular pressure during

spontaneous ture of senile cateract, suggest some relationship between the spotaneous obsorption of lens and development of lens induced glaucoma.

of glaucoma in case of long stending mature cataract.

Reuss also found that glaucoma occur in 8 and iridocyctitis in 3 cases of spontaneous cure of senile cataract.

Gifford (1900) describe the lens induced glaucoms is a glaucoma associated with hypermature cataract and urged its prevention by cataract extraction. Further Verhoeff et al (1922), Enapp (1937), Kaufman (1933), Heath (1941), Courtney (1942), Sugar (1949), Irvine & Irvine (1952), Hubersty and Gourlay (1953) and recently sallen end Maghes (1955) have reported on their experience with this entity and have discussed its prevention end appropriate therapy.

Heath (1941) described that increased intraocular pressure is anticipated with the rupture of the lens capsule and lens matter streaming into the anterior chamber or if the lens luxated into anterior chamber with the capsule intact. Glaucoma of this type which usually has a violent enset with the characteristic pathologic

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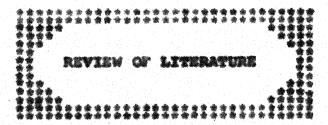
picture, liquification of the lens cortex open iridocorneal angle and presence of large histiocytes which have engulfed liquified lens material and are obstructing the trabecular meshwork. These features were first described by Leeman, who named the condition phacogenetic glaucoma. Subsequently various workers described such type of cases under different names like lens induced glaucome, lens induced uveitis and glaveoma, phacotoxic, phacogenic and finally phacolytic glaucoma have been replaced by term lens induced glaucoma, at present the lens induced glaucoma have a clearcut clinical picture characterised by -(1) a violent secondary glaucoma in one eye with the semile mature cataract, hypermature semile cataract (rarely intumescent semile cetaract). Yet with an open angle, (ii) Normal intraocular pressure and open angle in the other eye and (iii) a prompt relief of symptoms and restoration of vision, after cateract extraction in the affected eye.

Lens induced glaucome was classified as -

- (A) Lens induced secondary open angle glaucoma (phacogenic) -
 - (a) Phacolytic glaucoma,
 - (b) Phacoanaphylectic glaucoma and uveitis.

- (B) Lens induced secondary angle closure glaucoma-
 - (a) Due to intumescence of lens,
 - (b) Due to sublumation or dislocation of lens,
 - (c) Due to spherophakia, Microphakia.

Lens induced glaucoma likely to be encountered more frequently in the areas where hypermeturity of the lens seen more often. Illiteracy and poverty increases much more incidence of this glaucome. This preventable and curable condition though rare in developed countries, is unfortunately still prevelent in our country. The main aim of this study is to evaluate the incidence clinical features, management and visual prognesss of lens induced glaucoma.



Ristory a

Glaucoma and cataract have affected the mankind eversince his emergence on the face of the earth, but their true nature was not recognized by ancient Greeks and Romans. The present form of condition has evaluate only through the age of the research. The word Glaucoma first appear in hippocrates (420 B.C.) togather with the amblyopia in the list of diseases affecting bld people. Glaucoma is an ancient Greeks name meaning glare such as silverness of the sky as dull sheen of an eye which has lost its brightness.

Sams ad din (1806) described the glaucome as a migrain of the eye. An illness associated with pain in the eye, hemicrania, dullness of the humour followed by dilatation of the pupil.

Cataract is also a semile problem. It may be safely said that while everyone would develop a semile cataract. If he lived long enough; so also would everyone obtain a spontaneous cure if life where sufficiently prolonged. Some time this spontaneous cure complicated by rupture of the lans capsule leads to rise in intracoular pressure.

When the intraocular pressure rises secondary to change in the morphology or pathology of the lens termed as lens induced glaucome.

which the sponteneous cure of semile cateract is complicated by glaucema. Reuss (1900) found that out of 34 cases of sponteneous cure of semile cateract glaucema developed in eight and iritis or iridocylitis in three cases. Gifford (1900) observed that 3 out of four cases had lost their vision due to glaucema during spontaneous cures of semile cateract. Instances of this condition are cited also by Rollet and Genet (1913), Genzaliz (1919), Daily (1933), Knapp (1937), Sox and Ehrlich (1941 - 1946), Sugar (1949) and Scott (1953). Safar (1928) and Kaufman (1933) mentioned that in such cases cholesterol crystals were seen in the anterior chamber.

Smith (1891) observed that obstruction to the outflow of aqueous occur at the pupil or at the drainage angle and in many cases at both site resulting in secondary glaucoma. Erich Seidel (1920) and later on Curren (1920) advocated the idea of blockage of pupil as the cause of glaucoma. Heath (1941) said that

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rise in introcular pressure is enticipated with the rupture of the capsule and lens matter streaming into enterior chamber with the capsule intect. The lens mater in the vitrocus is a well known cause of recurring iridocyclitis and associated glaucome.

Finally Barkan (1938) with the help of improved gonioscope devided the condition into closed angle type and open angle type.

Classification :

Lens induced glaucoma classified as :

- Secondary open angle lens induced glaucoma. It include phacolytic glaucoma and phaceanaphyletic glaucoma.
- Secondary closed angle lens induced glaucoma,
 include
 - a). Phacomorphic glaucome in which shape of the lens changed due to swollen cataractous lens (intumescent stage) or it may be secondary to trauma.
 - b). It may be associated with the dislocation of lens may be either spontaneous or traumatic, spontaneous dislocation are seen in patient with the condition such as marfan's syndrome,

homocystinurie and syphilis. subluxation is partial or complete. In trauma the lens may be partial or completely anteriorly or posteriorly dislocated.

c) Third type is glaucoma seen in the eye with spherophakia, which occur most commonly as a part of marchesani syndrome.

Pathophysiology :

Enapp (1937) suggested that irritation of the ciliary body by the bouncing lens nucleus of a margagnian cataract account for the many cases of phacogenic glaucoma. According to Meeth (1941) the lens is capable of causing glaucoma through a number of routes and also that the lens structure has within itself the material to produce glaucoma directly and or indirectly. Once out of its bed, the lens become a marguder and is in effect, a foreign body within the eye.

Sugar (1949) observed that glaucoma developed in cases of spontaneous rupture of lens depaule is due to lens protein which act in three ways -

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- Chemical irritation due to toxic by products of lens hydrolysis.
- Increases protein content of the aqueous which tend to lessen the osmotic differential between the aqueous and the blood serum.
- 3. Mechanical obstruction of the trabecular spaces by lens particles affecting the equeous out flow.

Phacelytic glavcome -

Flock et al (1955) studied the pathophysiology of 138 cases and observed that lenticular degeneration is essential for the development of this type of glaucema, liquification of the cortex may occur focally or extensive and in 62% cases the entire cortex was envolved. Degenerative changes were usually observed in the lens epithelum and capsule. Most advanced alteration were observed posteriorly where often the capsule was attenuated markedly. In others the liquified lens corticulmaterial had apparently escaped through the unruptured capsule and could be seen over the surface of the lens and in the anterior chamber, Liquification of the lens cortex a process which may be called phaselysis is termed by Krause to be mediated by two

enzymes - protease 'A' and protease 'S'. Through their activity large molecules of lans protein are disinte grated to small molecules, which apparently diffuse through intact though perhapes more permeable lens capsule. The presence of lysed certical material in the posterior and enterior chamber evokes a histiocytic response. Large mononuclear phagocytes collect over the lens surface. These macrophages have a very characteristic appearance once they have become angorged with liquified lens substance, they swell up and become rounded. Their cytoplesm is distended with the finally granular, pale staining, slightly acidephilic particles of the lens material, almost identical with that still remaining within the lens. These megrophages carried by aqueous flow and become relatively more concentrated in the Irido corneal angle. The intertrabecular spaces and the surface of the trabecula become filled with these cells and with free lens material present in the aquous. These macrophages do not agglutinate or form keratic precipitate.

Flock et at (1955) found typical pathological picture in 108 (75%) cases had hypermature cataract.

liquified less substance in the posterior and anterior chamber and characteristic histiocytic response.

Trving et al (1952) also supported the same view about the pathology of phacolytic glaucoma.

Turbid aqueous may shows a cloud of punctate irridiscent opacities, they are mononuclear mecrophages swellen with the lens protein granule. Goldberg (1967) aspirate the aqueous from anterior chamber through a miliparefilter and demonstrate the highly characteristic phacelytic macrophages.

Phacoanaphylectic glaucoma :

verhoeff and Lemoine (1922) described that lens protein senstise the eye, producing usually a severe and some time milder inflammation characterised by invesion of the lens by polymorphonuclear laucocytes and mononuclear phagocytes. The presence of giant cells about the lens fragments in the iris and in the pupillary membrane which often formed. Deposition of conglemerate precipitate on the descements membrane. The presence of cyclitic membrane in the protrected cases. The lens fragements in the vitreous causes a collection of pus cells in the vitreous as well as on the retima, similar to the keratic precipitate. The pathognomic finding is the combination of polymorphonuclear leucocyte, macro — phages and phagocytized less material.

weak antigen. There is evidence that certain reaction have an ellergic aspect Verhoeff and Lemoine, Burky, Burky and Henten, Irvine and Irvine (1952) described that in cases with the hypermature cateract the lens substance escaping into the eye cavities produces uveitis and glaucoma, pathologically there is marked plasma cell reaction in the iris. If lens material is exueded posteriorly a marked cyclitis with plasma cells and mononuclear phagocytic cells response clouding the vitrous, and deposition of clumps of cells on the retina and on the descemet's membrane.

Phacomarphic glaucoma :

recognised that rapid swelling of the lens frequently excites a secondary rise in the intraocular pressure. This may occur in two conditions, one is with the rapidly developing intumescent cataract of senile type and other is traumatic cataract sausad either by perforating injury or by an operation of discision. The swellen lens pushes the iris forward making the anterior chamber sufficiently shellow to blocks its angle or to permit other factors such as mydricis to do so priestley.

should be resemble as the primary angle closure glaucome. There are three differences - (i) the fellow eye in the phacemorphic glaucome frequently has an anterfor chamber of normal depth, (ii) the antacedent refractive error may be of any type in phacemorphic glaucome while in primary angle closure glaucoma hyperepia is common and (iii) the mature cataract in the phacemorphic glaucoma reduces the severety of visual symptoms.

Displacement of the lens :

A subluxation or luxation of lens wheather it be spontaneous or traumatic is frequently followed by development of secondary glaucoma. Brown (1865) found that glaucoma is not uncommonly essociated with congenital sublumation as an isolated finding or as part of marfan's syndrome, marchesani syndrome or lens commonly in homocystimuria.

In traumatic cases secondary glaucoma is more common 16 out of 70 cases, Heyner (1915); 15 out of 36 cases, H. Mc Donald and Puvnell (1957) and 6 out of 11 cases Calhaun and Hagler (1960, In anterior dislocation of lens wheather spontaneous or traumatic an immediate secondary glaucoma is much more common.

Hegner (1915) studied that glaucoma occur in 14 out of 15 cases of anterior dislocation of lens into enterior chamber. Rodman (1963) found that 34 out of 44 cases of traumatic anterior dislocation of the lens had a clinical history or pathological evidence of glaucoma. In traumatic anterior subluxation or dislocation of the lens secondary glaucoma occur due to the recession of the angle of anterior chamber, Rodman (1963), Pupillary block by vitreous or lens. Chandler (1964) has commented on the frequent occurance of glaucoma in ectopia lentis, marfan's syndrome, marcheseni syndrome and homocystinuria. Smepal (1962) and Segal (1962) found that in ectopia lentis, marfan's syndrome and marcheseni syndrome, secondary glaucoma occur due to envolvement of angle of anterior chamber.

In spantaneous anterior dislocation, the lens is some time incarcirated in the pupil resulting in the pupillary block glaucoms. If the lens is completely in the anterior chamber the pupil may be blocked by iris carrying forward against the posterior surface of the lens lead to formation of extrinsic anterior peripheral synechia which hinderd the aqueces flow, Rodman (1963), Chandler (1964).

Archnodactyly, cardiec enemolies, sub luxated lene, some time glaucoma characterize the marfam's syndrome. In 80% of the cases the lens is spherical in shape and dislocated upword. Microscopically the engle of such eye shows a thickend anamalous trabecular meshwork with a large number of trabecular sheets passing the scleral spur and inserting directly into the ciliary body. Increased intraccular pressure is pruduced by trabecular anamoly as well as dislocation of lens. Homocystimuria is associated with subluxated or dislocated lens was first described by Garson and reill (1962) and well over 100 cases have since been reported.

In posterior dislocation of lens of traumatic origin secondary glaucoma is not so frequent, 2 out of 9 cases, Calhaun and Hagler (1960), Glaucoma occur as a result of trauma not due to dislocation of lens Rodman (1963), Chandler (1964). In spoteneous posterior dislocation, the lens usually well tolerated by eye. In those cases where hypertension occur, it is due to the vitraopupillary block, rubeosis secondary to ratinal detachment, Rodman (1963). Phecoanaphylectic or phacolytic glaucoma, Chandler (1959) or coincident primary glaucoma.

In traumatic posterior subluxation or dislocation of lens glaucoma occur due to the recession of the engle of anterior chember (30 out of 31 cases) Rodman (1963).

Microphakia or apherophakia is congenital and bilateral condition associated with skeletal changes may be complicated by glaucoma. Nowman (1965).

Marchesami (1939) described a syndrome characterised by apherophakia and ectopia lentis giving rise to lenticular symple and iridodonesis and glaucoma which is probably due to spherophakia. Spherical lens blocking the pupil lends to pupillary block glaucoma. Repeated self limitingulateacks of glaucoma may ultimately result in the formation of extensive peripheral anterior synachia and permanent increase in the intraocular pressure, Cartner (1958), Zoldin (1959), Levy and Adreson (1961).

consequences to be depicted in the experience of the

Incidence .

The incidence of phecogenic glaucoma amongs the various types of secondary glaucoma was studied by different workers as follows:

Table - 1

Shows incidence of phecogenic glaucome in relation to secondary glaucome

31. No.	scientia	Total no. of case stadied	No. of case of lens induced glaucome	Percentage
1.	Lehrfeld and Reber (1937)	413	80	19.4
	Kurland and Taub (1957)	14		
3.	Ymasi et al (1977)	761	30	5.0
4.	Agarval H.C. et al (1982)	1065	191	12.4

Phacogenic glaucome included, glaucoma due to the pupillary block associated with the intumescent or hypermature morgagnian cataract, phacolytic glaucoma, phacotomic glaucome and secondary glaucome associated with displacement of the lens.

The incidence of less induced glaucoma in relation to the total number of semile cataract operated was observed by various workers is given in table + 2.

Table - 2

Incidence of lens induced glaucoma in relation to total no. of senile cataract operated:

	Study	The same of the sa	No. of case Percent- of lens age
		4.6	induced plaucoma
Jaj	Ln.I.S. et al (1982)	2719	108 3.91
Dha	or G.L. et al (1984)	6294	214 3.49

The incidence of sex observed by various workers is given in table - 3.

<u>Table - 1</u>
Relationship of age & sex incidence

81.	Scientist	Average age (years)	Total no. of case studied	No.(%) of male	No.(%) of female
1.	Flock et al (1955)	70	138	82 (59.43%)	56 (40-576)
2.	Jain I.S.				
	et al. (1982)	62 (1894)	• • • • • • • • • • • • • • • • • • • •	40 (46.57%)	46 (53,49%)
3.	Dhar G.L.				
	et al (1984)	65.5	23.4	(43,46%)	121 (56,54%)

Flock et al (1955) observed that male sufrer 59.43% were dominating over females 40.57%. In further studies Jain et al (1982) and Dhar et al (1984) found that females are out numbered the males.

Clinical feature :

Lens induced glaucoma is characterized by the violent secondary glaucoma (resemble acute angle closure glaucoma) in the one eye with the senile mature cataract, hypermature senile cataract (rarely intumescent senile cataract) yet with an open angle. Normal intra-ocular pressure and open angle in the other eye and a prompt relief of symptoms and restoration of vision after cataract extraction in the affected eye.

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Symptoms and signs :

All of the patient have seriously impared vision prior to the onset of acute glaucoma. The second group of symptoms are related to the onset of glaucoma, which in most cases was sudden and varried little from the well known picture of acute congestive glaucoma. Ccular and periorbital pain, headache of varrying severity, nauses, vomiting and prostration. The eye was usually congested and shows corneal cedema, aqueous flare, fixed often dilated pupil and shallow anterior chamber or

deeper enterior chember, may be subluxation of lens. raised intraocular pressure and cataractous lens.

Hypermature cataract were seen in only 83 (39.0%) cases, mature intumescent cataract in 126 (58.5%) cases and immature cataract in 5 (2.5%) cases. Mean intraocular pressure in the affected eye was 36.6 mm Hg ± 7.4 mm Hg. The highest recorded tension 60.3 mm Hg and lowest was 26.6 mm Hg. schiots. The other eye invarriably was quite with sphakia in 96 cases, immature cataract in 64 cases mature semile cataract in 38 cases and hypermature semile cataract in 16 cases.

Socio - economic status :

Srivestove, R.N. devided the persons socio economically on account of percapite income. Person
having per capite income to, 300 - 600 or above detegorized
into upper class b, 139 - 299 in middle class and bollow
b. 130 in lower class.

Management_+

According to Dhar et al (1984) first of all intracoular pressure should be controlled by acctancismide comptic agent like oral glyceral, 20% manutal (1/v) and timolol eye drop in different combination alongwith local antibiotic drop. Surgical treatment was carried out as quickly as possible after an initial medical therapy. Cataract extraction was performed in single stage alongwith the peripheral iridectomy or other filtering operation, Heath (1941). Sugar (1944), Jain et al (1982). Dhar et al (1984).

Drug review :

Different drugs used to reduce the intraocular pressure.

Acetasolemice :

It is a carbonic anhydrase inhibitor. It reduces the production of aqueous by about 50% (Backer and Hay (1958); Draeger et al (1963)). It is given orally in the dose of 125 - 500 mg. one to four times a day and after single dose its action is apparant in 60 - 90 minute, reach a maximum in 3 - 5 hours and wearoff in about 12 hours. Sustained action capsule of the drug have a more prolong effect did not be given more than twice a day (Stepanic, 1967).

Camotic agent :

These substances raised the osmolarity of the plasma so that fluid withdrawn from the eye resulting in fall of intraocular pressure. Movement of the ocular fluid is established when there is defenitive concentration gradient Galin et al (1959).

- Various indications for uses of osmotic agent
- Angle closure glaucoma
- Secondary glaucoma (Hypermature, phacolytic glaucome.
- Preoperative

Uree :

First used osmotic egent Adler (1933), it induces marked hypotomy Alsawa (1962).

Mannitol :

According to Galin et al (1963), it has less side effect than urea. More potent hypotensive agent than urea Seeger and Levis (1964), it is used intravenously.

Different esmotic agent used are given in table with their route of administration and doses.

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Table-4
Shows different comotic agent with their route of administration and dose

Namo	Route of Dose administration	
Glycerol	Oral 1-1.5gm. 1 kg.	
Ethylalcohol	Cral 0.1-1.5gm. kg.	
Isosorbide	Oral igm. kg.	

Side effects :

Dehydration of body cause, headache, pain in the back, mental confusion, discrientation, Tarter and Linn (1961), Becker (1967).

Diuresis is enhanced markedly with mennitol and they must be used with caution in patient with the cardiac, renal and hepatic diseases.

Betablockers_s

As early as 1967 Philips, C.I., Howitt, C. and Rowland, D.J. introduced proprenolog into glaucoma therapy. However because of its mild anaesthetic properties, have made many investigators relucement to use it as a topical medication for glaucoma. Hall et al (1970) describe a new beta adrenergic blocking agent timolol. It blocks both beta 1 and beta 2 receptors. Timolol has neither sympathomimetic effect nor anaesthetic properties Pitz Gerald J.D. (1971). The abscence of local anaesthetic activity appears to make timolol a more resonable choice for local use in long term therapy. In animal experiments, Hall R.A. et al (1970), Scriabine A. (1973), it is proved that it has 5 - 6 time greater activity than propranolol. It is levo isomer which is usually embloyed. Rat's and his associates (1976) reported single eye drop study uses 0.5% and 1% and 1.5% timolol opthalmic solution in 15 normal volunteers.

intraocular pressure were decreased significently in comparision to 15 control. We side effect were observed, in particular, there was no ocular irritation, no alteration in the pupillary size and no change in the visual equity. Semmerman and Kaufman (1977) conducted a single eye drop study on 30 patients with glaucome and found significant lowering of intraocular pressure with timolol drops. A 50% reduction in the intraocular pressure pressure was estimated when pressure reading at seven hours after the eye drops were compared with the pre-treatment level.

They also conducted a dose response analysis to a single eye drop in 20 glaucoma patients. They concluded that maximum effect was achieved by a concentration of 0.5%. They also noted a prolong duration of action still present atleast 24 hours after the eye drops. Timelol was used and found to be much effective as compared to pilocorpine. The result of William P., Boger et al (1978) also confirmed these findings.

Treatment of phenolytic glaucoma :

giving earbonic anhydrase inhibitor and osmotic agent then performed surgery. Robert H. et al (1964) studied that this glaucome is misdiagnosed as angle closure glaucome and iridectomy was performed. Flock's and coworkers pointed out that sudden onset and symptemology are often very similar to those of acute angle closure glaucome. This probably was the reason for iridectomy in these cases. During operation ciliary body was torn and there was hesmorrahage into anterior and posterior chamber. Infact red blood cells as well as the product of breckdown crythrocytes acting in the concert with mecrophages attached by the escaped lans material.

produced further mechanical blockage and aggregate the glaucoms.

irvine and grvine (1952) suggested that curability of this condition by removal of the lens. Flock and co-workers (1955) stated that after delivery of the lens the anterior chamber should be irrigated in an effort to remove as much as morgagnian fluid and as many macrophages as possible. Ther (1984) in his study of 214 cases initially controlled the intraocular pressure by 20% mannitol and glycerol (orally). Diamox and or timolol in different combination with the local entibiotic drop. After that performed surgical procedure, cataract extraction alongwith the peripheral irridectomy (single stage) operation in 210 cases and in 4 cases surgery was carried out in two stage a preliminary peripheral irridectomy followed 2 weeks after cataract extraction.

Phaco apaphylectic claucoma :

In this case corticosteroid therapy is usually minimally effective. Cure of the condition depends on recognition and extraction of all lane material

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Intumescence of the lens :

In this intraocular pressure reduced by medical means such as carbonic anhydrase inhibitor. Comotic agent and when tension was reduced to normal level lens is removed by extraction (in intrumescent stage) or curettee evacuation or aspiration (in traumatic cataract).

Jain 1.5. et al menaged 86 eyes of this type of glaucema. He controlled the introcepturer pressure by medical means and then introceptular cataract extraction was done in 49 (57%) eyes. Planned extraction capsular cataract extraction in 9 eyes and combined extraction with trabeculectomy in 9 eyes.

Dislocation of lens :

In spontaneous sublumetion or lumation, treatment of choice is extraction of the lens. In homocyptimuria an anteriorly dislocated lens producing an acute glaucoma. The dilerma is wheather to extract the lens or to come it back through the pupil in the hope that subalquent missis will provent recurrent dislocation.

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clarke (1939) argued that in enteriorly dislocated lens, the lens extraction was justified. Chace (1945) reported the result of operating upon four cases of congenital bilateral subluxation of lens but concluded that the result in all cases were unsatisfactory. Chandler (1964) deplored the practice of extracting the dislocated lens and advocated for a peripheral irridectomy to eliminate the pupillary block in forward movement of the lens. Speath and marker (1965), Thomas, Hollowell Peter, Cargall and Lester (1966) and Gardon, Carstan Hart and Pollitt (1978) reported the extracting anteriorly dislocated lens in patient with the homocystimuria vitreous was invarriably lost. Jhonston (1966) described the respond of 6 lenses from the patient with the homocystimuria.

plaucome due to enterior dislocation of lens. Elkington (1973) in his study gave openion that an enteriorly dislocated lens in a patient with the homocystiauric should be managed medically, when ever possible. If the lens can not be replaced behind the iris by medical means, it should be reposited under goneral anaesthesia and peripheral irridectory performed. In a child or young

audult would it appear resonable to extract the lens.

In traumatic dislocation the probability that the lens will rapidly become catactous and required extraction.

Spherophakia:

For this type of glaucoma the treatment is difficult. The condition usually paradoxical in that the use of miotics may lead to the rise in the tension (inverse glaucoma), Urbanick (1930), Robert (1953), which can be reversed by mydriatics. Extraction of the lens generally by means of vectis has frequently been advocated but has not always lead to relief. Reedling of a spherophakic lens does not lead to absorption.

Jack Levy and Anderson (1961) studied and found that irriductomy, Abexter no performed at an early stage in the filteration angle is appear to be simple and good procedure. Support of this view by Rosenthol and Kloepfer (1956). Once the angle of anterior chamber closed some form of drainage operation is necessary i iridenclesis or cyclodialysis).

The complication noted by Dhar G.L. et al (1984)
are - Corneal hase, Hyphema (Post operative), Shallow
anterior chamber, Rupture of the lens capsule, Vitreous
prolapse and Mazy media.

Visual procnosis :

Jain 1.3. et al (1982) observed that eyes tend to with stand raised intraocular pressure for a longer period than expected and observed that visual prognosis in the lens induced glaucoma depend upon the time interval between the onset of acute attack and starting of treatment and found the visual prognosis as following.

Dhar G.L. et al (1984) in his study observed the visual prognosis as follows :

<u>Table - 5</u>

Showing the visual scuity among the operated cases of lens induced glaucoma

	VIS or sore	€/34 OF J*88	
1. Jain 1.3. et al (1982) (86 gases)	54 (62.8%)	20 (23.3%)	13 (13.9%)
2. Dhar G.L. et al (1984) 1 (214 cases)	69 (79.6%)	36 (26,8%)	09 (04,2%)

MATERIAL AND METHOD

The present study was carried out in the department of Ophthalmology, M.L.B. Medical College and Hospital, Jhansi between July, 1988 to June, 1989. The patients selected have marked visual deffect because of the advanced lenticular opacities and raised intraocular pressure. The patients suffering from lens induced glaucoma were taken up for the study.

The patients were of either sex and age ranged from 35 years to 80 years. Number of eyes underwent surgery was 36. The minimum follow up period was three month. The surgery was done by the consultant surgedn of the department.

and the second of the second o

The method :

The following pattern was addopted for almost all the patient :

<u>Pistory of present illness :</u>

History of headache and evecthe, its severity, duration and association with voniting, diminution of vision, redness and watering of eye, History of enticlaucoma therapy was asked. If any,

Past Edstory :

Regarding previous attack of some disease trauma, vomiting, diabetes or visual disturbences, if any noted.

Personal Mistory :

Symptoms relating to diabetes and hypertension were asked and addiction to any drug was recorded.

Exeminations :

Systemic .

Recording of pulse, blood pressure, temperature exemination of cardio - vascular and respiratory system.

local *

The local examination was done under bright illumination with the help of uniocular corneal loppe (10 x) and + 13D condensing lens. By this we examine the conjunctive, cornea, enterior chamber, iris pupil and lens.

The slit lamp exemination was done routinely particularly to exemine, transparency of dornes, aqueus flare, keratic precipitates, extent of the lenticular opacities and pigmentary desperson over lens to elicit pupillary reaction or perception of light in doubtful cases.

Investigations :

Routing -

It include wrine albimin and sugar in all the cases and when ever indicated blood sugar, total leucocyte count, defferential leucocyte count blood hasmoglobin, erythrocyte sedimentation rate etc.

Special -

- of smellen's test type, finger counting, hard novement, perception of light and projection of rays depending on the indeviduals visual status. The best corrected visual sculty was recorded in post operative and follow up period.
- (2) <u>Pupillery examination</u> Pupil of the both eyes were seen for -
 - Fupillary reaction,
 - Size of the pupil and
 - Shape of the pupil.

Pupillary reaction-direct and commonsual pupillary reaction were seen with the help of spot light.

Size and shape of the pupil were assessed with the help of torch.

- schiot's tonometer with standard technique. Almost in all the cases, except in incooperative patient, where only digital tonometry was done, one perticular schiot's tonometer was used preoperatively post operatively and in follow up period.
- Patient was asked to lie down in supine position looking straight at the ceiling of the examination room.
- Xylogain 4% was instilled into the both eyes untill local anaesthesis was complete.
- noth eyes lids were separated with the finger without pressing on the eye ball and then the temperature was placed vertically on the corner so that it rest by its own weight.
- Depending on the tension of the eye there was a deflection of the recording meddle on the
- The reading on the scale was then translated

 from the conversion chart into milimeter of
 mercury.



PHOTOGRAPH SHOWING SCHIOTZ TONOMETRY (LEFT EYE)

- (4) <u>Fundoscopy</u> Both distant direct and direct ophthalmoscopy were done post operatively by Keeler's mediclum ophthalmoscope. The condition of the optic disc such as size, shape, colour, excavation nasal, shifting of vessels and disc cup ratio were noted. Beside this any absormality in the fundus was recorded.
- patients by Goldman's three mirror Gonioscope to assess mainly the angle status (open or closed). Beside these the peripheral anterior synechia and neovasularisation of the angle, if any were noted.

When the desired investigations were done the patient was subjected for medical therapy followed by surgical intervention. Whenever the operation was delayed the patient was put on acetasolamide and timelol eye drop.

Preoperative preparation :

The patient were mentally propared to undergo cataract extraction with sector inidectory of combined surgery. To relieve the approhension, entiety and to have good sleep night before the operation dissepan Smg tablet was given. The cyc lashes were cut a day before.

The intraocular pressure was controlled with acetasolamide 250 mg tablet in suitable doses. Two ounces of glycerol with equal amount of water as a single dose therapy, when tension was not controlled, intravenous mannitol 20% was injected an hour before the operation. To premedicate the patient, injection pentasocine 30 mg and injection phenargan 50 mg were given intrammacularly half an hour before the operation.

Anconthesia s

<u>Topical</u> - By instillation of 4% lignocain 4 - 5 times at 2 minute interval.

Regional skinesis - It was obtained by 2% lignocain with adrenalin by O'Brien's method preferably and when ever essential by vonlint's technique too.

<u>Giliary block</u> - By 1 ml. retrobulber injection of 2% lignocain with edrenelin followed by ocular with message for 3 - 4 minutes.

Steps of operation 4

The operation was done under 3x magnifications by magnifying glasses. After the 11d and superior rectus suturing, a limbal based conjunctival flaps was formed over the superior 180 degree approximately 4 m.m. from limbus at 12 0'clock position and gradually tapperd down closed to the limbus at 3 and 9 0'clock position. Plape was reflected over the cornea and limbus cleared. The superfecial vessels were thermally couterized.

Then with the help of blade enter the enterior chamber at 12 0 cleck position. Corneal scissors was then introduced into the enterior chamber through already formed incision, to extend the corneal section passing through the preformed grooved An iridectomy was parformed after the completion of the section. After releasing the superior rectus muscle suture lens extraction was done by cryoprobe / forceps / vectis or as indicated otherwise. Intra capsular cataract extraction was pleaned in every case.

In che sub conjuctivel space (iridenclesis) elongwith
the cateract extraction. In some cases transculectory
alongwith the lane extraction was done.

Committee of the commit

reposited and cornec seleral stiches were given with 8 - 0 virgin ailk or 9 - 0 manofilement. Then conjunctival flaps were reposited and stiched contineously with 8 - 0 ailk suture. The sterile air was injected to reform the enterior chamber. Sub-conjunctival injection of decadron 1 mg. and gentamicin 10 mg. was given. The operative complications were managed as in the routine cataract extraction. After applying the plain antibiotic eye eintment the eye was bandaged.

Post Operative management :

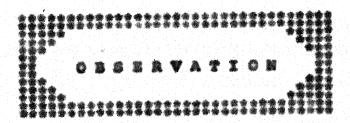
A suitable systemic antibiotic usually chloremphenical 250 mg. 4 times a day or cotrimosescle double strength 1 tablet twice a day with antiinflamatory drug were given to all the patients, for 3 days stleast. Daily dressing was done with corticostered and antibiotic eye cintment. 1% atropine was added in the case of iritis of in whom sector iridectory was performed. Injection gentamicin, decadron and atropine were given sub - conjunctively when indicated.

The eye was examined on every dressing and post-operative detailes were noted. Particular attention was paid to the condition of section wound, stricte heratitis, depth of the anterior chamber hyphems and any sign of iritis and were managed accordingly. In uncomplicated cases the conjunctival and corneceleral stiches were removed on the 5th day and the patient was discharged subsiquently with the follow up treatment and advise.

The Collow up a

The patient were advised for follow up examination at 15 days after discharge then at one month duration. Aphabic correction was done at one and half month after the operation. Final examination was done at 3 months after operation.

At the follow up the eye was examined for any infection, transparency of cornee, depth of anterior chamber and condition of the iris. Fundoscopy was done to evaluate the condition of disc. Here emphasis was given on corrected visual equity and intraocular pressure. All the findings were recorded for the findings were recorded for the findings.



The present study of the lens induced gleveres and its visual prognosis was carried out in the department of Ophtheleology, N.L.B. Medical Coilege and Mospital, Thansi. During this period 36 patients were studied out of which 7 patients were operated for glaucome only on first stage. After that they were not turned up for 2nd stage operation, that is less extraction. Twenty nine eyes were operated for both glaucome and catarect and were followed up. The follow up of the patients varried between 15 days to 3 months. The average follow up being one and half menth.

January Company of the Company of th

Thirty six coops of less induced glewcook vero recorded ever this period of study, deskributing thout 10.6% of the total 339 even of smalle deternet educated for cotoroct extraction.

An A por Justiana a saction social distributor

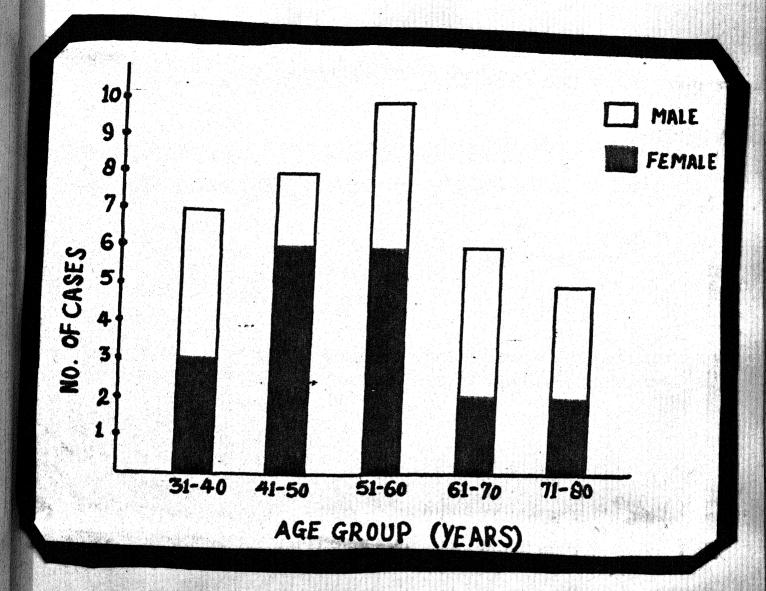
the age and sea of the patients are shown in table no. 1.

Table no. 1
(Distribution of age & sex of patients of lens induced glaucome in 36 eyes)

Sl. No.	(yeers)	No. pas to	of ion- ×		10-		ele X Ac-
1.	31 - 40	07	19.44	94	11,11	03	0.33
2.	41 - 50	00	22,22	03	5.55	06	16.66
3.	51 - 60	10	27.77	04	11.11	06	16.66
4.	61 - 70	06	16.66	04	11.11	02	5.55
5.	71 - 80	05	13,00	03	8.33	03	5.55
	7044	36	100.00	87	47.22	19	52.70

The age of the patients varied between 35 years to 80 years. The average age of the patient was 55.7 ± 12.46 years. Age group 31 - 40 includes 67 (19.44%) patients out of those 4 were makes and 3 were females. Age group 41 - 50 years includes 8 (22.22%) patients, the number of makes and females in this group was 2 and 6 respectively. The maximum number of patients recorded in the third group that is 6th decade were 10 (27.77%) out of which 4 makes and 6 females.

The minimum number of 5 patients were in the age group of 71 - 80 years in which 3 males and 2 were famales.



GRAPH SHOWING AGE & SEX DISTRIBUTION IN PRESENT STUDY The total number of male patients were 17 (47.22%) while female 19 (52.78%).

Table no. 2

(Duration of acute attack in lens induced glaucome in 29 eyes, operated for both cateract & glaucoma)

Al. No:	Dus	etios eteme	eč : (če	acut ys)							
	(V)										
1.		73				5			17.	!	
		3 - 1				7			24.1		
	<u>(a)</u>									V	
1.		6 - 1				•			20.0		
3.		12 - 1				4			23.		
3.		7 20	14:4	W 1 - 3 - 80 9 18 0	3.33	7	141		34.		
	448	Parks (Id		1471			

The patients were further devided into two
groups, according to the duration of onset of disease.

Group 'A' included patients of 1 to 5 days of duration
of onset of scute attack and Group 'D' included patients
of duration of illness of 6 days onwards.

The former group include 12 (41.37%) out of 29 cases while the later group included 17 (58.62%) patients. This was done for statistical evaluation of results in two group to know the effect of duration of illness.

In all the duration of scute attack varied between 1 to 60 days. 5 (17.24%) eyes presented with acute attack within 2 days, 7 (24.13%) eyes between 3 - 5 days, 6 (20.68%) eyes between 6 - 10 days, 4 (13.79%) between 11 - 20 days and 7 (24.13%) eyes presented with the scute attack more than 20 days. In group 'A' 12(41.37%) eyes present with the scute attack upto 5 days while rest 17 (58.60%) eyes had history of attack more than 6 days.

As for as the side of eyes was concerned

15 (41,66%) were left while rest 21 (58,33%) were
Eight.

We further devided the patient came from Urban or Rural area, The number of patients came fro Urban area were 12 (33,33%), while from Rural area were 24 (66,66%).

(Shows the number of cases belong to different socio-economic class)

Bl. No.	Socio-economic class	Per cepita income (Rs.)	No. of cases	Percentege
1.	Upper class	600 or above	•	
2.	Upper middle class	300 - 599		•
3.	Middle cless	140 - 299	02	5,55%
4. 9.	Lower middle cless Lower class	60 - 139 less than 60	10 24	27.77% 66.66%

socio - economic status, There was no patient from apper a upper middle class. Only 02 (5.55%) patients belong to middle class and 10 (27.77%) patients were from lower middle class and 24 (66.66%) were from lower middle class and 24 (66.66%) were from lower class.

Presentation of symptoms :

The petients presented with gross visual deficit because of the advanced lenticular openity and glaucoss.

March 1985 Ann ann an Aireann an

tion in the second state of the second state o

The patients with the lens induced glaucoma presented with the gradual diminution of vision super imposed with moderate to severe headache and sudden to scute onset of pain.

The most symptoms were of scute enset except the diminution of vision, which patients had for month and years. The symptoms complained by the patients in order of frequency are recorded in table no. 4.

Table no. 4
(The different symptoms in lens induced glaucoma in order of frequency in 36 cases)

81. 80.		lents percentage
1. 2.		100.00 100.00 100.00
9. 9.	Shardoolka .)
•• ••	Saladi Salada wasan wasan 1945 a salada s	

Diminution of Vision, oge pain and redness of eye presented in all the cases of less induced planes 31 (62,20%) case had beckethe, is (36,66%) patient he nauses / vemiting at the time of enset of scute attack, only 7 (19.44%) patients had lid swelling and watering of eye.

Sicos_t

Examination of the cases of lens induced glaucoma revealed the following signs were given in table no. 5 in order of frequency.

Table No. 5
(Signs revealed in cases of lens induced glaucome in order of frequency)

Sl. No.	***	No. of patient	Percent-go
1.	Circum corneal congestion	34	100,00
2.	Dileted pupil	36	100.00
3.	Shallow enterior chamber		100.00
4.	Deffective vision -		
		***	100.00
5.	Raised introoculer pressur	. 35	97.23
6.	Semile deteract	31	66,13
7.	HANY COURSE		59.55 59.55
0.	Conjunctival congestion	*	16.66
9.	SAG Codemia		13.89
10.	Aquepus 21ere		19.69
11.	traumatic cataract		
12.	Cpen angle of anterior chamber (done in 6 cases)	06	100.00



PHOTOGRAPH OF A CASE OF LENS INDUCED SECONDARY GLAUCOMA (LEFT EYE) shallow enterior chamber and diffective vision found in all the cases. Raised intraocular pressure were observed in 35 (97.22%) eyes where as only one (2.78%) patient had low tension inspite of all other signs are present.

Only in 1 petient hand movement was present. In 22 patients PL/RR were present, 2 patients had only perception of light and 11 patients had doubtful PL.

On alit lamp examination observed that 5 patients had aqueous flare.

Genicacopy was done in aix patients and all were having open angle.

The signs of initial ware observed in publicate were given in table no. 6.

Table Bo. 6

	tionto (THE RESERVE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN THE PERSON NAMED IN COLUMN TWO IS NAMED IN THE PERSON NAMED IN THE PERSON NAMED IN THE PERSON N		teage
31 -Ho.	Sign						
L. Initi	Lo press					16.76	20.5!
	· Artesta, Committee and Commi	nochia ucous £1	.000	, ,		16,76 13,80	
	is not p			11/14/1	25		69.4

Iritis was observed in 11 (30.55%) cases in which it was present in the acute form with synechia/ aqueros flare.

Type of lens induced gleucome :

The verious type of lens induced glaucoma in 36 eyes were shown in table no. 7. The diagnosis of different type of glaucoma was based on history clinical examination, slit lamp examination etc.

Break up of pre - operative diagnosis as related to type of gleucome in 36 eyes.

Table S0. 7
(Type of glaucoma in 36 eyes)

51.Eo.	turn of	gLeucona	Mo.cd	G8888	Percentage
					80.55
1. P	ecotoxic				
2. 91	acomon ph			04	11-11
	competic Contorios	dislocation)		03	00.33
				_	

The maximum number of particular that is 2 (0.55%) had phasotoxic lone induced glausons.

phasomorphic glausons and 3 (0.35%) troumstic lone
induced glausons in which lone dislocated unterlocates.



PHOTOGRAPH OF A CASE OF LENS INDUCED GLAUCOMA DUE TO TRAUMATIC ANTERIOR DISLOCAT-ION OF LENS (RIGHT EYE)

Type of cateract .

The different types of cataract found in cases of lens induced glaucome are given in table no. 8.

Table no. 8 (Type of cataract in 36 eyes)

7	772-0	o#	GARA			***************************************		No.ed	patient	Percentage
***										2.77
1			o cat	esect						
3	latu	FØ 1	cetas	est						11.11
1	i a bes			ect v	11th					8.33
		gw¢	llen	lons						
1	Ma tu	ra	diale	ceted	l and	post	.08			0,33
	Taras S							2		60.03
	Lypo			CECA						

Though the evaluation of cutaroct was done proconstituted. Its type and extent was further consistence
extent the removal, under magnification.

Fre-operative visual acuity :

The pre-operative visual sculty was diminushed due to lenticular opecity and corneal eedema. Pre-operative visual sculty observed in 29 cases were given in table so. 9.

Table No. 9 (Pre-operative visual acuity in 29 cases)

Vieuel	 uty		No.	of	oyes	Poses	
Hand #						3.	.44
PL PR			39				
Cally I) ,			
Pour V	<i>7</i> .						

Table no. 9 shows the pro-operative visual sculty of 29 cases with less induced glaucoma, one (3.64%) age had hand movements. Only. The maximum number of 19 (65.51%) ages had postive Pi with PR in all the four quadrents. 2 (6.6.89%) had Pi only and 7 (24.13%) ages had doubtful? St. 24.25%

Pro-parative intracular pressure.

the introductor processes at the time of edulation (initial tanalor) is shown in table so, 10.

Table no. 10 (Pre-operative intraocular pressure in 29 eyes)

Sl. No.	Duration of ecute attacks (day)	No.of eye	intrace	pre-operative der pressure / mg)
GEORGE.	6)			
	∠2 3-5)5.5 6.0
90 ro# (0)				
	6 - 10			12.66
	11 - 20			19.09
9.	7 20			10.67

Pro - operative average tension was recorded in Group (A) was 40.75 mm/mg and in Group (B) 42.79 mm/mg. The minimum introocular pressure recorded was 24.4 mm/ mg and maximum 69.3 mm/mg with average 41.97 mm/mg.

and and an area to the first terms

Other eve

cho other eye in 1 (2 17%) case. In (16,66%) cases the other eye in 2 (2 17%) case. In (16,66%) cases the

der eine Archentektisk untrifftste und eine geben

2300 tonont_s

Pre- operative antiglaucoma therapy - The entiglaucoma therapy was given to all the patients and is shown in table no. 11.

<u>Table no. 11</u> (Pre-operative antiglaucome therapy)

	Mad	let							No.			50		V.		
Jago		6) A							1				24.1	3		
			nd de					0.0	1				10.1			
			måda måda										13.1 24.1			
14. (<u>3</u> .)	et int			•	Oly		j)						27.5			
W	l et)OVO	+ 101		isto	•			 •	3			6/41			*****

Acotasolamide was used in all the 39 patients.

It alone controlled the tension in 7 (24.13%) eyes

with mild rise of tension. More ever these eyes were

operated upon a day or two later.

The tension was controlled in further (13 70%)

Oyes with timolal and acetesolemide. These two drugs in

eddition with plycoral further controlled the tension

(14.7 (24.13%) oyes.

Even with three drugs tension remained high in 5 (27,50%) eyes, so intravenous mannitol was given one hour before surgery.

after an initial medical treatment, cataract extraction was performed in single stage alongwith the sector iridectomy or iridencelesis in 28 (77.77%) cases. Only in one (2.77%) case surgery was carried out in two stage a preliminary iridenclesis followed 6 weeks, after by cataract extraction, in 7 (19.44%) eye iridenclesis was performed in 1st stage operation but they were not turned up for lens extraction.

Complications s

The various complications occur pre-operatively during operation and immediate after operations are recorded in table no. 12.

<u>Table no. 12</u> (Complications following surgery in 29 even)

81. No.	Complication No. of Cases	Percentage
1.	Byphania :	3.44
2.		5.89
3.	Vitroous prolapse Rupture of lens capsule 2	6.89
5.	Heary modula construction in the state of th	3.44

Pre - operatively - There were no complications.



PHOTOGRAPH OF A CASE OF LENS INDUCED GLAUCOMA AFTER COMBINE OPERATION (RIGHT EYE)

Intra - operative complications :

The hyphaema was seen in 1 (3.44%) eye that was massive and lead to corneal staining.

Iris injury occured in 1 (3.44%) eye while vitrous prolapse occure in 2 (6.89%) eyes. Rupture of the lens capsule occured in two (6.89%) cases.

Immediate post-operative complications :

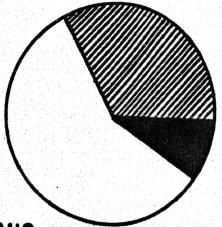
The complication occurring within 15 days of follow up period were considered immediate or early post-operative complication.

The Stricte Keretitis was observed in 19 (65.51%) cases. It cleared in all the cases by the end of 15 days of follow up.

Initia was seen in 6 (20.68%) oyes it was mild in a consecution of the consecution of the

Viewel processels !

After 5 weeks of follow up sphakic correction was done with the help of spectacion. The corrected visual equity is given in table No. 13.



GROUP A



GOOD

58.33%

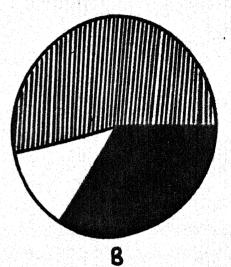


MODERATE



POOR

8.34%



11.76%

52.94%

35.30%

GRAPH REPRESENTING THE VISUAL PROGNOSIS IN GROUP A & B

22					
# # # # # # # # # # # # # # # # # # #					
\$1\$ \$1\$					
54 <u>\$</u>					
			3	8	Ş
鵬		***			
				•	
A	1 1		8	â	

Lens induced glaucome is a condition to recken within our ophthalmic patients from this part of the Country. The condition seems to be fairly common in our neighbouring districts. This may be due to the poor helth, education, lower socio - economic status illiteracy, poor geriatic care, four of operation and inequesability to ophthalmic surgeon by these patients.

This condition is scute in eastly treatable and course, clinically recognisable easily treatable and also preventable.

This present study have been undertaken with the view of observing symptoms sings, effect of medic end surgical intervention, that is improvement in the viewal aculty often operation in the cases of less induced glaucomes

Induced glausons, but of which if eyes was subjects
to surgery for glausons as well as loss sucreavious
and followed up for full partial. Seven eyes operate
only for glausons.

Inglidence_s

In present study the incidence of lens induced glaucoma in relation to the total cataract operated in this institution during one year period is 10.6%.

Table - 1

The incidence of lens induced glaucome in present and other previous studies.

		Total mo.of caterast operation	No. of cases of lens ind- uced glauscha	ntago perce-
	Jain et el (1982)	2719	100	3.01
2, 3,	Oher et el (1984) Present study	6294 339		3.40 9.6

The incidence in present study is much higher
in comparison to the incidence of various verkers,
because the cases are smaller in number, people in this
region are illiterate, very poor, does not know the
maning of health and living in the villages.

Acc and con I

The age of the predent verifod from 35 to 80 years, with the Mg Sp = 55.7 g 12.46 years which is studied to year to year year.

The patients included in this study were more female with a ratio; of 1.12 female : 1.0 male, which is coinciding with those given in literature.

<u>Yable - 2</u>

Age and sex incidence in present study and other privious studies

\$1. \$4.		go.cf goses	No. of male patient (%)	No. of female patient (%)
	(1955) ⁶³ 70	199	82 (59,43)	\$6 (40,57)
		•	40 (46.57)	(53,49)
		.5 214	(43.46)	(56.64)
4. Prov	pat study 55	.7 36	(67,22)	(52,70)

particular portioning to tolong to the rure!

publication area and only 13,33% came from urban area

(material that this disease is much more examine

(linger, which is demonstrate with other studies

(Dise of al 1964), he further observed that 34 (94,455)

atticute belong to lower and lines minute along the

problem, and does not know that 'provention is better

problem, and does not know that 'provention is better

Clinical feature

The symptoms present in these cases given in observation table no. 4 are diminution of vision, eyesche, redness of eye, headache, nausea, vomiting, swelling of the lid and watering of eye are more a less similar to given in previous studies, Flock et al (1955), Jain et al (1982) and Dher et al (1984).

In this study only 12 (41.37%) petients came within a week period of equite dampet of disease and seat 17 (50.62) came after a week period, but of which 7 petients came after a menta duration, which is a way detrimental factor to the visual proposes.

The signs which are found on examination
enouncerated in observation table no. 5 are electricity
fary congestion, dilated pupil and shallow amperior
chamber were found in 100% cases intracemier pressure
was related in 35 (97.21%) eyes. In one (2.70%) case
introcedur processes was low inspite of shallow anterior
chamber pupilicry block and circum ciliary congestion.

The cause of this lowering of intracouler pressure may be the cyclitis. Duke Elder et al (1966). Deffective vision were found in all the 36 cases, out of which

29 eyes those are operated for both lens extraction and glaucome 20 (68,97%) eyes have accurate projection while 9 (31,03%) eyes have inaccurate projection.

The Aritis As present in 11 cases, Six cases are observed by geniescope and found that engle is open in all six cases prove that in phacotoxic glaucoms angle is open.

In 31 cases (06,11%) sendle exterect and in 5 (13,09%) traumetic cateract was present. Out of 31 in 30 cases of sandle cateract, the dataract was present in the form of hypermature, or mature from indicating that less induced glaucome monthy occur due to hypermaturation of cateract.

Type of long induced glaucona :

this period is phecotomic glausema (involving 29 (80.55%) of cases, including phecolytic and pheco-campbylestic glausema. The second commonwax causes is phecomorphic glausema including glausema for to pupiliary block esseciated with sheller intumescent of hypometure cotomest. Third cause is displacement (anteriorly) of less as the result of treams.

Therefore, the phototoxic glaucome due to hypermeturation of coterect is the main cause of lane induced glaucome. In hypermeture stage due to the capsular dehiscence the degenerated lens metter, expelled out into the anterior chumber resulting in the above consiquences.

Control of Introocular pressure

acotamolomido. In 14 (40.26%) como impulli the
pilocorpino or timolod and, otal piyrarol vara pivas
in 7 capas alanguith above treatment. In 7 capas vero
tempilon was not controlled by above, introvence

10) (41.37%) oyes patient become normationalive following sector irridectory and lens extraction. While in 17 (50.42%) cases performed combind extraction (filtering operation + lens extraction).

Complications_t

in this series of cases spereted for land induced plausens, some complications were seen during the operation. These were blood in the unterior chamber in 1 (3:44%) case. The literature had only a few reports with the blood in the enterior chamber as operative complication. There et al (1984) reported 7.4% case had blood in the enterior chamber.

In this study supture of the lens capsule takes
place in 3 (6.89%) cases because lens capsule become
very them & fragile or some time already supture
present in the lens capsule. Ther et al (1984) reported 4.20% supture of lens capsule.

in the form of vitrous prolopse - vitrous disturbance courts the form of vitrous prolopse - vitrous disturbance had been quite a frequent occurance during lone autiention in these cases, as evident from report of Ther et
el (1984) found vitrous prolopse in 3.27% deser-

common complication after surgery. In present study it occur in 6 (20.00%) queen. During entraction of lens the last surgery and complete of lens the last surgery body and provoke a antique antibody resolutes the last surgery anticome of lens changes are observed in 5 (17.24%) queen reformed by maps than 3 days. In literature that at al (1964) reported with following a changes for all (1964).

Those observations are quite comparable to the previous reports. In one eye, however, during dislocated lens removal accidental injury to the iris took place.

Ylamal prochosis .

The visual acuity was ranging from doubtful perception of light to hand movement or better at preoperative examination. Out of 39 (100%) eyes, only
20 (68.97%) eyes had an accurate projection however,
rest of the eye 9 (31.03%) has inaccurate projection
rangind from doubtful perception of light to perception
of light, After operation, however useful visual acuity
was found to be present in 32 (75.86%) eyes ranging
from 6/60 to 6/12 or better with aphagic correction.

We observed that the eyes seem to be with stand reised introcular pressure for longer period than expected.

of coute attack recovery of visual acuity and beyond a coute at the except recovered this visual acuity in which the duration of attack lasted 3 - 5 days. Thus as the duration of attack lasted 3 - 5 days. Thus as the duration of attack increases there is a programmive duction in the recovery of visual acuity and beyond 3

weeks only light perception or hand movement could be observed. Out of 9 cases with inscurate projection of light one case obtained 6/36 vision having history of attack of 5 days, one eye had hand movement however in other 7 eyes with insccurate projection presenting 3 weeks or more efter the attack, 6 eyes could achieve only the hand movement or perception of light. Thus in a case of lens induced glaucoma, who present early, a good functional recovery can be expected despite on initial insecurate projection of light.

If we dategorise the visual prognosis as good 6/24 or better, moderate 6/60to 6/24 and poor HM to PL them results of visual prognosis of this series are shown in table no. 3.

<u>Table - 3</u>

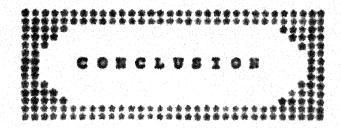
Visual prognosis in present study & previous studies.

81. Bo.	9447	Eo.of Cades	Good V.A. 6/24-2/12	Moderate 6/60-6/36	Poor HM to PL
1.	ain ot al (1982)	•	54 (62,6%)	20 (23,3%)	(13,4%)
3	her et el (1984)	214	169 (79,0%)	36 (16,8%)	(04,2%)
) . !	racest stu	by 20	(31.03%)	(44.82%)	07 (24,13%)

In the present study good visual aculty obtained in fewer member of cases in comparison to the previous studies because maximum patients came after long duration of acute attack.

Cobthalmoscopy a

Optic disc also showed changes which were significantly related to the duration of attack of glaucoma, upto 10 days of attack a large majority of optic disc retained good colour. When the attack lasted more than 3 weeks nearly all the eyes developed paller or atrophy of the disc.



and the state of t

In the light of the present work and with a view of studies in the past from the literature the following can be concluded:

- (1) Lens induced glaucoma affected usually after 5th decade of life and commonly between 51 60 years of age (M \pm SD 55.7 \pm 12.46 years of age).
- (2) In present study the incidence of lens induced glaucoma in relation to total semile cataract operated in the same duration is 10.6%, much higher than previous studies. 3.91% because people in this region are very poor, ignorant about health, and illiterate, live in the village and this disease is much commoner in poor, villagers.
- (3) If affected both the sexes, females out numbered the male with a ratio of 1.12 : 1.0.
- (4) The important symptoms and signs of this disease are gross diminution of vision due to cataract and glaucomatous attack, redness of eye, eyeache, circumciliary congestion, raised intraocular pressure, shallow enterior chember and dileted public

- therapy. The tension was reduced temporarily by miotics and acatesolamide and then increased again. If the glaucoma is present and the pressure is under 30 mm. mg. do not hesitate to do a combined extraction because removal of the lone as Dr. Neeth has stated brings relief in such cases.
- (6) In present study the most commonest type of lens induced glaucomn is phospholic type (phosphylic and phosphylicatic) in 29 (80.55%) cases.
- (7) The most common types of complications occur during and after surgery in these type of cases were hypheema, rupture of the lens capsule, vitreous prolopse and iritis etc.
- securacy of light projection and final visual recovery were significantly related to the duration of the ocute attack of glancoma good functional recovery was obtained if the attack lasted less than 3 weeks, beyond which only hand movement or perception of light could be recovered.

- (9) The condition of disc is also depends upon the duration of scute attack of disease.
- (10) The condition has by and large an excellent prognosis even in the apparently hopeless cases, if treated within a week of acute attack. Even in patient with the doubtful perception of light at admission good visual improvement did takes place after adequate treatment.

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APPENDIX - 1

DEPARTMENT OF OPHTHALMOLOGY, M.L.B. MEDICAL COLLEGE AND HOSPITAL, JHANSI (U.P.)

PROPORNA FOR CASE EXAMINATION

Case No.

	o Patient :		MD NO.
Age / Sea			
Ward/Ded			900
Address		11 in 12 in 15 in 16 in 16 The transfer of the transfer of	(Improved)
Cecupation			Abscardedy
Chief con	A a I m ta		Euration
•			
FRANCISCO DOSCOS			
Apple of the second sec	present 111	THE RESERVE AND A STREET AS A STREET	
i Wo Pai	doubles of v B	20200	
3. H/o Red			
4. N/o Nee			
Table Target			DIAM
1. R/o 0cu 2. R/o gla			
3. No New	pea/Vomiting		

- Temporature Hydration

Cornea

Normal/Hezy

Amberior chamber

Normal/Shellow/Deep/Content-

pus/blood/clear fluid/ Turbid fluid

Aqueous flair

Propent/Non present

Irlo

Appearance Symechia Hormal/Atrophies/Colobons/Hudy

Present/Kon present

Pupil

Shape Size Fupillary rection Round/Ogal/Trregular Normal/Constricted/Dilated

Normal/Diminushed/Absent

Lone

Position Appearance Normal/Sublumated/Dislocated
Intunescent/Neture/Sypermeture

Calcification present/Not

present

Visual Aculty

ituad movement

PL

Present/Not present Present/Not present Present/Doubtful

Other eye - Normal/Imsture caterect/Hature/Hypermature out.

Investigations

Tenolon -

Regnal / Natood

(Digital)

Schiota tenemetry

A cyc m

Slit lamp examination - Aqueups fleir/present/son present Kp's present/Not present Indocormeal angle open/closed grade 0,1,2,1,4.

Contone s

Urine - Albumin

- Sugar

Medical freeteens

Local-

Emetante-

Suroical treatment

Post Corretive complication

Follow up - Fundam ex

tension - 15th day....mm Hg 3 month....mm Hg

Aphable Correction -
